

Appl. No 10,628,110
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Reply to Office action of June 9, 2005

Amendments to the Claims

Original listing of claims (1-5) is cancelled. New listing of claims (6-9) presenting below will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

Claim 1 (cancelled). Method for rapid detection of live cells by detection of micro colonies produced by these cells which method comprises: growing of micro colonies in a small and thin channels of the device consisting from micro channel plate, filter to trap cells and frame in order to form long cylindrical micro colonies, as a result of growth on solid nutrient media in order to increase their visualization with optical instruments by changing optical characteristics of light passing through the channels, where channels contain micro colonies will look different from empty channels optical characteristics.

Claim 2 (cancelled). The method of claim 1 wherein micro colonies formed in long and thin channels with a shape another than cylinder.

Claim 3 (cancelled). The method of claim 1 wherein device placed in liquid nutrient media and trapped cell produces suspension of cells in a channel.

Claim 4 (cancelled). The method of claim 1 wherein micro channel plate filled by liquid nutrient media and placed on examined surface, or a surface covered by nutrient media and micro channel plate put on after.

Claim 5 (cancelled). The method of claim 1 wherein optical characteristics changed as a result of adding of artificial substrate produced colored or fluorescent substance or other substance to colorize cells or use physical methods to change optical characteristics of channels containing cells like heating to coagulate proteins, add hydrogen peroxide to produce micro bubbles or grow cells in highly colored liquid nutrient media and observe the increasing of light transmittance in the channels with growing cells.

Claim 6 (new). A method for the rapid analysis of live cells, by detecting long and thin micro-colonies produced from cells trapped in small volume (picoliter format: 1-500 picoliters), long,

thin, micro-channels that are open from both sides and attached to a filtration material, which method comprises:

- filtrating of investigated sample through a device consisting from a micro-array of long and thin micro-channels collected in a micro-channel plate, with a filter attached to one side of the micro-channel plate for trapping cells presented in a sample in the micro-channels on the surface of the filter, where some micro-channels can obtain cells and some not,
- attaching solid or liquid nutrient media to the side of filter opposite of micro-channel plate,
- growing of micro-colonies in micro-channels from trapped cells,
- replacing the micro-plate with a filter and micro-colonies on another surface are filled by absorbent or fluorescent dyes in order to colorize the micro-colonies and increase their light absorbance or make them fluorescent,
- replace the micro-plate with a filter and place colored or fluorescent micro-colonies under a light or fluorescent microscope and detect and enumerate colored or fluorescent micro-colonies which number correlate to live cells in initial sample.

Claim 7 (new). The method according to Claim 6, wherein micro-colonies don't need additional coloration and are detected by a natural increase of light absorbance, light scattering (turbidity), or natural fluorescence in comparison with empty micro-channels that don't possess named optical characteristics.

Claim 8 (new). The method according Claim 6, wherein micro-colonies are detected using coloration by dyes that change the color or fluorescence of micro-colonies after reaction with cells structures or biomolecules.

Claim 9 (new). The method according Claim 1, wherein micro-colonies are detected by coloration of their body or surrounding extracellular space by chromogenic or fluorogenic substrates that reveal a color or fluorescence after cleaving by specific indicator enzymes.